AMERICAN SOCIETY OF CIVIL ENGINEERS FOUNDED 1852

PROCEEDINGS
of the
American Society
of
Civil Engineers

2 PARTS — PART 2

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Foreword

IN appearing before the membership, Part 2 of Proceedings does so in the hope of serving a useful purpose and of meeting a long felt want. Its endeavor will be to more closely bond the membership by presenting news and notes of the many activities in which the Society is engaged and which make of the organization a vigorous, living force.

Part 2 will aim to disseminate facts and information for the purpose of fostering a common understanding. It will also seek to present the Civil Engineer in his relation to the advancement and the benefit of human kind.

The Society's Work

Who Does It?

THE greatest part of the clerical work is done in the Secretary's office, but an estimate recently made shows that somewhat over eleven hundred members of the Society were actually engaged in doing the active work—the work that makes the Society a living force in the professional world.

Figure it out for yourself. Officers, 27 in number, attend six Board meetings each year. 40 Members of Executive Committees guide the affairs of the Technical Divisions, arranging for meetings and suggesting programs and speakers. Papers were prepared by more than 70 persons last year and something like 60 members reviewed them, advising as to their merit. Approximately 210 other members contributed written discussions. In preparation for the meetings of the Society another 100 aided, some giving much time and effort to the many details that devolve upon such committees of arrangements. Members of Special Committees, some with reference to research, others as to business details, and still others on matters affecting the profession, number 131, and 98 others represent the Society in activities of other bodies or societies.

On the local Membership committees are 203 members, scrutinizing at close range the applicants for admission and transfer and advising the Board of Direction in that very important work. There are 90 officers of the Local Sections. That's 1029.

To these must be added the 83 Professors, located at engineering schools in the several parts of the country, who act as faculty sponsors to the Student Chapters, and the officers of these chapters number 166. That's by no means all, but that's a total of 1278.

If to these be added the program and other special committee members who contribute to the work of the Local Sections; the many others who upon special occasions have jumped in and helped this activity or that; those who prepare the memoirs, a last service to a departed friend; the tellers at ballot times; if these and many more who contribute unselfishly could but be counted the total would only further show that the work of the Society is done by—the members themselves.

Cleopatra's Needle

An Engineering Feat of Forty-Five Years Ago

A GRANITE monolith sixty-nine feet long, approximately eight feet square at its greatest girth and weighing one hundred and ninety-six tons, is an article the handling of which would tax the engineering ability, the ingenuity, of most of us. If it were further a priceless object of art, the gift of a Khedive of Egypt to the United States, to be excavated from the sands of a far distant land, transported to deep water, there loaded into a vessel, cradled and shored to guard against the vicissitudes that might be expected from a storm-tossed ocean, unloaded on the other side of the world, to be hauled through the streets of a great metropolis and re-erected without the disfigurement of a single hieroglyph, one would heave a deep sigh of relief when 'twere done.

Doubtless Lieutenant Commander Henry H. Gorringe of the U. S. Navy did so sigh though also properly might he have prided himself, for the task was no easy one to accomplish. Were it to be undertaken to-day it would have its problems, but to accomplish it with the facilities that had been developed forty-five years ago was a far greater task.

Cleopatra's Needle, as it is called, stood erect on the shore of the Mediterranean Sea at Alexandria, its pedestal and a portion of its length buried in sand, dirt and débris. Nine days sufficed for a hundred Arabs to uncover the obelisk, its base and the steps down to sea level and to provide a space large enough for the subsequent operations.

The excavation completed, a stag-

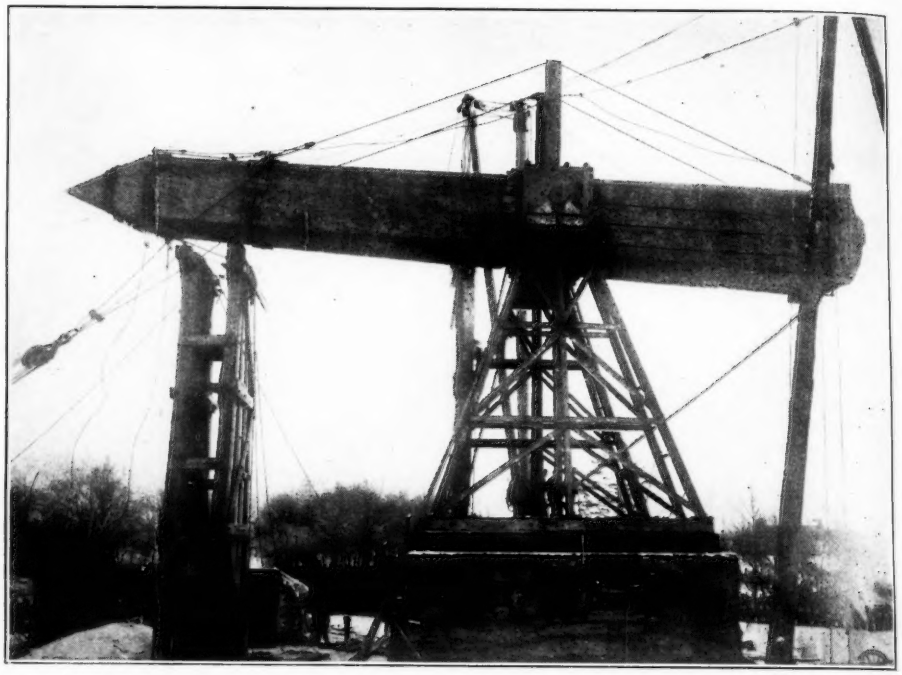
ing was erected and the obelisk encased in planks securely held in place with iron bands. From the corners of the top band wire cables running to anchors at some distance from the base served as stays. All well so far, but now to lift, turn into a horizontal position and lower the shaft. For this purpose masonry piers were built on two sides of the obelisk and thereon erected steel towers which reached to a point just below the calculated center of gravity. There, on top of the towers, in pillow blocks rested trunnions, which extended from a large iron collar, temporarily not fastened tightly so that the shaft might easily rise within it.

To lift the mass, tie rods provided with turn-buckles depended from the trunnion-plates and supported beams thrust cautiously underneath the lower end of the obelisk. By shortening the tie rods the shaft hung supported from the trunnions. To make it fast when lifted, to erect a truss on what was to be the top side of the shaft as it would be when lying horizontal, a precaution against its breaking over its middle solitary support, and to allow the whole shrouded object to turn a quarter turn on the trunnions seems easy, but, because of vexatious delays required much time.

A crib of wooden timbers received the upper portion of the shaft when lowered and well it was that it had been provided, for, some of the tackle failing, the mass toppled faster than intended, bounced twice but settled finally, undamaged, horizontal, forty-three feet up in the air.

Another stack of timbers erected log cabin fashion was built to support the butt end of the obelisk. To transfer the mass from the trunnions to these two towers presented more difficulties than might be expected because, due to the only wood available, small and soft, the compression in the stacks was twenty-two and one-half inches in the forty-three feet.

By alternate jacking up and removal of the blocking, the stacks lowered the shaft to a pontoon set upon a launching ways. From the point where the shaft had stood to the wharf where lay the deep sea vessel was a distance of less than a mile, but permission could not be obtained to make the trip overland and a shallow draft pontoon had therefore to be provided to detour a distance of ten miles, incidental to which was the necessary removal of the submerged foundations of a former palace.



Turning the Obelisk

A floating dry dock received both the pontoon and the iron steamer *"Dessoug,"* purchased for the purpose. The pontoon demolished, a hole was cut near the bow of the steamer and the obelisk, still snugly swathed, jacked into her hold where it lay with only inches to spare.

To repair the steamer, cradle and block the obelisk against the vessel's ribs and above and below, to load to other parts of the vessel the pedestal and steps, to coal and ballast, to secure a crew, were all finally accomplished and the good ship *"Dessoug"* sailed for the U. S. A.

At New York the ship docked at a marine railway on Staten Island where her bow was hauled out of water. Once more the steel plates and ribs were cut away, and the obelisk turned and slid out through the aperture, onto a staging over the water, no longer at sea but not yet ashore. The next day two pontoons, floated under it and rising with the tide, lifted it preparatory to its short voyage to Manhattan Island at 96th Street and the Hudson River. There the operation was reversed and shortly the famous shaft, still in its wooden padding, rested above the water on a timber crib.

For crossing the railroad tracks another crib was prepared piecemeal in advance. At the given moment all trains were ordered stopped, the crib assembled in place, the obelisk advanced to the other side, the crib removed and traffic resumed, one freight train having been delayed twenty-five minutes.

Thence, at a rate of ninety-seven feet a day for two miles to Central Park the obelisk made its way on wooden rails over crib after crib, the last being eight hundred and ninety feet long and forty-eight feet high at its maximum.

This crib ended at the site chosen for re-erection and, as at Alexandria, the masonry piers were built, the trunnion plates attached and once more the quarter turn was made, the shaft lowered into position and then Commander Gorringe heaved his sigh of relief, his job accomplished.

Fifteen months were required for the work. Its cost, defrayed by William H. Vanderbilt, totaled $103,732, and the evidence indicates that the engineer received $1,156 as his compensation.

Commander Gorringe, who was an Associate Member of the Society, died on July 6, 1885.

Reserve These Dates
for the
Philadelphia Meeting
Oct. 4, 5, 6, 7, 8, 9, 1926.

Engineering Institute of Canada

THE badge of the Engineering Institute of Canada, which all corporate and non-corporate members of that society are privileged to wear, is of registered design as shown below.

The Members' badge is of gold, the Associate Members' of silver, and the Juniors' and Students' of bronze.

Requirements for membership in the Engineering Institute of Canada are somewhat higher than those of the American Society of Civil Engineers, as shown by the following parallel columns:

	E.I.C.	*A.S.C.E.*
"Member"		
Minimum Age	35 years	30 years
Engaged in Prof.	12 years	10 years
Responsible Charge	5 years	5 years
"Associate Members"		
Minimum Age	27 years	25 years
Engaged in Prof.	6 years	6 years
Prof. Responsibility	2 years	1 year
"Junior"		
Minimum Age	21 years	18 years
Eng. in Engineering	4 years	2 years
"Student"		
Minimum Age	17 years	None*

*Students may be members of the Student Chapters of the Society without qualification as to age.

Candidates who have not graduated from a school of engineering recognized by the Council of the Institute are required to pass an examination before a board of examiners on the theory and practice of engineering, with special reference to the branch of engineering in which the candidate is engaged, but this examination may be waived at the discretion of the Council if the candidate has held a position of professional responsibility for five or more years.

The Institute now has about 5,300 members of all grades.

Irrigation Problems

THE Society's Committee on Irrigation Hydraulics has undertaken studies of the following specialized topics:

Silt Problems
Chutes and Drops
Scouring below Dams
Evaporation from Soils
Losses in Siphon Spillways
Losses in Canal Conversions
Measuring Irrigation Deliveries
Evaporation Losses from Reservoirs
Water Movement and Pressure under Dams.

It is certain that the gentlemen composing the committee will welcome data or correspondence which will help them in their investigations. D. C. Henny, Member, (Portland, Ore.), is Chairman and J. C. Stevens, Member, (Portland, Ore.), is Secretary of the Committee. (See January Proceedings for other members and Year Book for addresses.)

Applications Increase 38 Per Cent

THE number of applications for admission to the Society for the first seven months of this year is 38 per cent in excess of those received during the same period in 1925. This quite unusual increase is unquestionably due in part to the concessions made to engineering school graduates desiring to become Juniors. But even before such applications began to come in, around graduation time, the increase over the same period in 1925 was 30 per cent.

Award Student Prizes

THE names of the 14 students who are to be elected Juniors in the Society as winners of the prizes offered by Local Sections, are listed under "Items of Interest," in Part 1 of Proceedings.

Under the arrangement sanctioned by the Board of Direction, the several Local Sections arrange the terms of the competition, and select the winners. The prize includes payment of the initiation fee of $10 and also, in most cases, the equivalent of the first year's dues.

The Board also has authorized the remission of the first year's dues in cases where application is made within two months after graduation, so that these prize winners will have two years' contact with the Society without expense.

Philadelphia in October

Accommodations Can Be Reserved Now

"THE Sesquicentennial Exposition at Philadelphia will be adequately complete in all its particulars at the time of the Society meeting in October," says Vice-President Richard L. Humphrey, Chairman of the Local Committee on Arrangements.

Many will be attracted to, it is felt, by the technical program which is being carefully prepared and parts of which it is expected will be contributed by visiting engineers from foreign countries.

To obviate any uncertainties, however, as to satisfactory hotel accommodations, the committee will supply members and guests with a memo of place, time, rate and type of the room which will be reserved.

This memo, it is stated, will be in triplicate form and have the nature of an agreement between the Local Committee and the hotel management with copy to the member making the reservation. Better write now to Mr. Humphrey, 805 Harrison Building, Philadelphia.

Certificates of Membership

THE high esteem in which Certificates of Membership, issued to members upon election, are held is indicated by the promptness with which they are ordered. Generally, only a few weeks intervene between a member's election, his request for a certificate and its receipt by him.

Occasionally, though, years elapse before certificates are requested, perhaps to grace the wall of a newly opened office, perhaps to assist in identification in some land other than ours where English is not so generally known. One such case occurred quite recently.

A member who was elected as long ago as 1904, late in 1925 requested that a certificate be issued to him so that he might have it for an office in one of the South American countries where he was shortly to take up his work. Lapses of 21 years are not many, though numerous requests for certificates are received from members elected two, three, four and five years previously. Approximately 500 Certificates are issued yearly.

The Seattle Meeting

THE Seattle meeting is over and those who were able to attend have stored away as a souvenir memories of gloriously tall, stately trees, industrial operations on a stupendous scale, cordial and warm-hearted hospitality, and friendships new and renewed.

Wednesday, with its welcome from State and City officials—a lady mayor, by the way—its discussion of the engineering problems of the logging industry ably presented by the members of the Society and others, ended with a bang-up good dinner and a beautifully illustrated and interesting address descriptive of the Southwest.

Thursday, with simultaneous sessions of four of the technical divisions in the morning and four more in the afternoon, provided with its capable papers and free discussions, new ideas to help one earn one's daily bread.

But bread and meat are not all, and the dinner-dance on Thursday evening gave to the men who had met each other during the business sessions, and to the ladies who had "got together," a chance to exhibit their "better-halves" to each other.

True Western hospitality pervaded the social affairs and the Committee on Arrangements is to be congratulated on the success of its efforts.

So, too, are to be congratulated the committees on all the other details—the entertainment for the ladies, the excursion arrangements, on hotel accommodations, which includes a mass of minor items, the satisfactory carrying out of which is not noticeable but the failure of which would protrude itself as unpleasantly as does a sore thumb.

Friday, rather sleepily at the start perhaps, the crowd gathered to go by automobile to one of the largest logging camps of the West where all the tricks from topping the first tree to loading a car with the finished product were shown in detail.

This closed the meeting officially and the thanks of the Society are due to Mrs. Hussey for her chairmanship of the Ladies' Entertainment Committee, to Mr. Downey for his chairmanship of the General Committee, and to Messrs. Hedges, Hussey, Ober, Gray, Fowler and Evans, chairmen of the several sub-committees, and to their many assistants for a very delightful affair.

August Proceedings

THE current issue of Proceedings, Part I, an unusually large number, contains four papers:

"Straight Line Plotting of Skew Frequency Data," by R. D. Goodrich, Member, of Tientsin, China. Engineering frequency data as, for example, the run-off of streams, tend to follow some definite but rather baffling law. By a unique method using special co-ordinate paper it is possible to transform the data so that they plot as a straight line and from this to deduce the general principles governing the variation.

"Distribution of Reinforcing Steel in Concrete Beams and Slabs," by B. S. Myers, Member, of Oklahoma City, discusses various phases of concrete design, including the proper moment coefficients to be used, and the provision for shear, including the spacing of stirrups.

"Snow Removal Problems of Organization and Operation," by George E. Hamlin, Member, of Hartford, outlines the basic principles involved in the organization of snow removal work with special reference to experience in Connecticut.

"Finishing and Curing Concrete Roads," by C. L. McKesson, Associate Member, of Sacramento, gives an extensive analysis of some of the problems of concrete road construction, including the appliances for finishing the surface and the proper curing of the pavement, as shown by a fine series of tests carried out in California.

With Relation to the Public

A Code of Ethics Prepared by the Texas Section of the Society

"1. THE ENGINEER shall have a lively interest in all that relates to the civic welfare of his community, and should join and support the local civic and commercial associations. He should take part in those movements in which his special training, knowledge and experience qualify him to act.

"2. THE ENGINEER shall endeavor to assist the public to a fair and correct general understanding of engineering matters, to extend the general knowledge of engineering, and to discourage the appearance of untrue, unfair and exaggerated statements on engineering subjects in the press or elsewhere, especially if these statements may lead to, or, are made for the purpose of inducing the public to participate in unworthy enterprises.

"3. Technical discussions and criticisms of engineering subjects should preferably be conducted before engineering societies, or in the technical press. This also applies to the first publication concerning inventions, or other engineering advances.

"4. It is unprofessional to give a public opinion on a subject without being fully informed as to all the facts relating thereto, and as to the purpose for which the information is asked. Any opinion offered should contain a full statement of the conditions under which it applies."

57th Street Lease-hold Appears Profitable

THE consummation of the lease-hold on the property of the Society located in 57th Street seems to be, as President Davison says, an instance of "having your cake and eating it, too."

If the property had been sold, the proceeds could have been invested, of course, but there would have been little likelihood of any appreciable increase in the capital sum.

Under the lease-hold plan the Society's investment in the property returns a satisfactory annual income and if the property should enhance in value as the years go on, which in fact it seems bound to do, that enhancement accrues to the Society, as owner of the fee.

The Committee which brought about this happy arrangement consisted of Lincoln Bush, Chairman; Ira W. McConnell and Francis Lee Stuart, to which was added George S. Davison, when he became President. See Part I of Proceedings for details regarding this important transaction.